

# **TAIL PIPE FOR MUFFLER**

## **BACKGROUND OF THE INVENTION**

### **1. Field of the Invention**

The present invention relates to a tail pipe for a muffler, and more particularly to a tail pipe having internal fittings that make the tail pipe look more attractive and perform warning signs.

### **2. Description of Related Art**

Vehicle tail pipes in accordance with the prior art do not have any feature for visible warning or decoration and so the existing tail pipes are potentially hazardous and not attractive. Besides, special accessories for a vehicle are popular with some drivers who enjoy customizing and thus distinguishing their vehicles from others. Especially, when a vehicle uses a luminous tail pipe in a dark environment, the vehicle will attract the attention of surrounding people. Such aforesaid features to a tail pipe have not appeared in the market yet.

Because combusted gas in an engine of a vehicle is exhausted through the mufflers and the exhaust pipes of the mufflers, the temperature of exhaust pipes of mufflers is so high that somebody who touches inadvertently the exhaust pipes will be burned. This is especially true for a vehicle that has recently become stationary and a passerby may not realize that in fact the exhaust pipe and surrounding elements are still very hot. The tail pipes are attached to the exhaust pipes of the mufflers to prevent the hot exhaust pipes from burning somebody. However, the temperature of the tail pipes will simultaneously rise due to radiated heat from the hot exhaust pipe. Visible warning signs for the tail pipes are required to indicate the danger.

1           To overcome the shortcomings, the present invention provides an  
2 improved tail pipe having internal fittings to mitigate or obviate the  
3 aforementioned problems.

#### 4 SUMMARY OF THE INVENTION

5           The main objective of the invention is to provide an improved tail pipe  
6 for a muffler wherein the tail pipe has internal fittings that provides a decoration  
7 for the tail pipe.

8           Another objective of the invention is to provide an improved tail pipe for  
9 a muffler wherein the tail pipe is luminous to provide functions of warning.

10          To achieve the aforementioned objective, a tail pipe in accordance with  
11 the present invention comprises a hollow body, two internal fittings and an  
12 optional illuminating assembly. The hollow body has an inner passage that has a  
13 front opening, a rear opening and two windows. The windows are located  
14 opposite to each other and each of them has a given shape. Each internal fitting is  
15 mounted in the inner passage of the body by means of fasteners and corresponds  
16 to one of the windows. The internal fitting has a side face that faces the window  
17 and a protrusion formed from the side face. The protrusion has a shape that  
18 corresponds to the shape of the window, is received in the window and extends  
19 partially out of the window.

20          The illuminating assembly is mounted in the inner passage of the body to  
21 illuminate the internal fittings to be visible in a dark place. The internal fittings  
22 are made of transparent or translucent materials. Therefore, the internal fittings  
23 will provide a visible signal to show a position of the tail pipe and function as a  
24 warning signal to alert someone who is close to the tail pipe to keep a distance

1 from the hot tail pipe.

2 Other objectives, advantages and novel features of the invention will  
3 become more apparent from the following detailed description when taken in  
4 conjunction with the accompanying drawings.

#### 5 BRIEF DESCRIPTION OF THE DRAWINGS

6 Fig. 1 is a perspective view of a tail pipe for a muffler in accordance with  
7 the present invention;

8 Fig. 2 is an exploded perspective view of the tail pipe in Fig. 1 that  
9 further has an illuminating assembly;

10 Fig. 3 is a perspective view of the tail pipe in Fig. 1;

11 Fig. 4 is an operational perspective view of the tail pipe in Fig. 1; and

12 Fig. 5 is an operational perspective view of an alternative embodiment of  
13 the tail pipe in Fig. 2.

#### 14 DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

15 With reference to Fig. 1, a tail pipe in accordance with the present  
16 invention comprises a hollow body (10) and two internal fittings (20). The  
17 hollow body (10) has a front (not numbered), a rear (not numbered), an outer  
18 periphery (not numbered) and an inner passage (101). The inner passage (101)  
19 has an inner periphery (not numbered), a front opening (not numbered) and a rear  
20 opening (not numbered) that are defined respectively in the front and the rear of  
21 the body (10).

22 With reference to Figs 1, 2 and 4, the body (10) further has two mounting  
23 holes (102) and two windows (103) defined through the outer periphery. The  
24 windows (103) are located opposite to each other and each of them has a given

1 shape (not numbered). The mounting holes (102) are defined in the outer  
2 periphery near the rear of the body (10) whereby the tail pipe can be fixed to an  
3 exhaust pipe (31) of a muffler (not shown) by means of fasteners, such as screws  
4 (30). Each internal fitting (20) is mounted on the inner periphery of the body by  
5 means of fasteners, such as screws (30) and corresponds to one of the windows  
6 (103). The internal fitting (20) has a side face (not numbered) that faces the  
7 window (103) and a protrusion (201) formed from the side face. The protrusion  
8 (201) has a shape that corresponds to the shape of the window (103), is received  
9 in the window (103) and extends partially out of the window (103).

10 With reference to Figs. 2 and 3, the tail pipe further comprises a  
11 illuminating assembly (40) to light the internal fittings (20) while the internal  
12 fittings (20) are made of transparent or translucent materials. The illuminating  
13 assembly (40) comprises a circuit board (41), two mounting brackets (42) and  
14 multiple illuminating members (43), such as light emitting diodes (LEDs). The  
15 mounting brackets (42) are respectively attached to the inner periphery of the  
16 body (10) and are L-shaped. The circuit board (41), which connects electrically  
17 to the electricity supply of a vehicle, is mounted on the mounting brackets (42)  
18 and is ring-shaped with a central through hole (412) that allows the exhaust pipe  
19 (31) in Fig. 4 to extend thereinto. The illuminating members (43) connect  
20 electrically to the circuit board (41) so the illuminating members (43) can be lit  
21 for performing warning signs after the vehicle becomes recently stationary to  
22 prevent people walking around the parked vehicle from getting burned. Also, the  
23 illuminating members (43) can be illuminated for decoration of the vehicle while  
24 the vehicle is moving in a dark environment. The illuminating members (43)

1 face a respective one of the internal fittings (20) and produce light that is  
2 transmitted to the internal fittings (20) to make the internal fittings (20) visible in  
3 a dark environment.

4 With reference to Fig. 5, the aforesaid tail pipe further has an inner pipe  
5 (11) mounted in the inner passage (101) of the body (10). The inner pipe (11) has  
6 a front opening (not numbered) and a rear opening (not numbered) that extend  
7 respectively toward the front and the rear openings of the inner passage (101).  
8 The inner pipe (11) extends through and is held in the central through hole (412)  
9 of the circuit board (40) and is suspended by fasteners, such as bolts (32) or  
10 rivets (not shown). The rear opening of the inner pipe (11) connects to the  
11 exhaust pipe (31) to guide the combusted gas being directly exhausted through  
12 the inner pipe (11) to prevent the illuminated assembly (40) from being  
13 contaminated by the combusted gas.

14 Therefore, the protrusion (201) of the internal fittings (20) can be formed  
15 as a decorative pattern to make the tail pipe to look more attractive. Especially in  
16 a dark place, the illuminating internal fittings (20) will provide an unexpected  
17 yet eye-catching decoration effect for the tail pipe.

18 Besides, the internal fittings (20) will provide a visible signal to show an  
19 exact position of the tail pipe regarded as a warning signal to alert someone who  
20 is adjacent to the tail pipe to keep a distance away from the tail pipe to avoid  
21 being burned.

22 Even though numerous characteristics and advantages of the present  
23 invention have been set forth in the foregoing description, together with details  
24 of the structure and function of the invention, the disclosure is illustrative only,

- 1 and changes may be made in detail, especially in matters of shape, size, and
- 2 arrangement of parts within the scope of the appended claims.